REMARKS

The Office Action of May 5, 2006 has been carefully reviewed.

Claim Objections

Claims 3, 6-8, 13 and 14 have been amended to correct the antecedent basis problems and terminology variation as noted by the Examiner.

Claim 9 has been cancelled and incorporated into claim 1 as will be described below.

Claim 4 has been amended to remove the new matter of 7.5 volts and now recites that a shunt path is provided for "a voltage signal greater than 5 volts." Support for this limitation, which differs from the formulation used in the original claim 4, is found at Paragraph [0055] which describes the zener diodes as providing for a voltage shunt at voltages "over approximately 5 volts (6.3 V in the preferred embodiment)". The Applicant's intent is to cover systems which shunts at least one voltage over 5 volts even if not all voltages over 5 volts are shunted, for example, that shunts voltage at 6.4 volts but not necessarily 5.1 volts. It is believed that the specification as cited, as understood by a person of ordinary skill in the art, fully supports this limitation.

Claim Rejections 35 U.S.C. §103

It is believed that the inventors were the first to recognize that high-speed serial data communication networks, such as ControlNet, Ethernet or the like, can effectively be isolated using a passive barrier system. Conventional circuits for the passive isolation of power would reasonably be expected to attenuate high-frequency electrical signals needed for high speed data transfer. This is because high frequency electrical signals have some of the same characteristics as high-energy electrical spikes that are to be blocked in an electrical fault condition.

The claims have been amended to both clearly indicate that the invention applies to isolation of a " megahertz serial digital data communication network" and to better recite structure unique to this application, including DC blocking circuitry and symmetrical bipolar shunting. Support for these limitations are found at paragraph [0046] describing use with ControlNet and Ethernet, both of which are specified to operate at speeds above one megahertz; paragraph [0058] describing the DC blocking circuit; and paragraph [0055] describing the equal voltage shunting provided by the zener diodes at two polarities.

In contrast to the invention as now claimed, the Hallenbeck and Morgan references

teach electrical barrier circuits used to provide intrinsically safe isolation of electrical power of the type described in the Background of the Present Invention at paragraph [0011]. Flaza teaches the isolation of radio frequency power for radar tank level measurement. Kogure describes data transmission at kilohertz frequencies as superimposed on isolated direct current power transmission. Thus, none of these references alone or in combination teach the isolation of megahertz digital data as is now claimed.

This difference in purpose is also reflected in structural differences between the prior art and the present invention also expressly recited in the claims. The first such limitation is the DC blocking element required to be in series between the first and second terminal sets. Each of the references of Morgan, Hallenbeck, and Kogure fail to show a DC blocking element and, because they teach the transmission of DC power, would not function with such a DC blocking element. Flaza also fails to teach or suggest a DC blocking element, and although such a blocking element might be consistent with the transmission of radar signals, it is believed that there is insufficient teaching suggestion for both modifying Flaza and using Flaza for digital data transmission.

The second such limitation is the requirement for a bi-polar voltage sensitive conductor that provides substantially matching positive and negative shunting threshold voltages. As can be seen in Figs. 1 of Morgan, Hallenbeck, and Kogure, each of these references employ a unidirectional asymmetric zener diode circuit. Flaza appears to have no voltage sensitive shunting element.

The operation of isolating high-speed data transmission is sufficiently different from the applications shown in these references that a person of ordinary skill in the art would not be led to a recognition that a passive barrier could be created for a high-speed digital network. Certainly, none of the prior art circuits alone would inherently be able to provide the necessary isolation and transmission of high-speed digital data.

In light of these remarks and amendments, it is now believed that Claims 1-8 and 10-15 are now in condition for allowance and allowance is respectfully requested.

Respectfully submitted,

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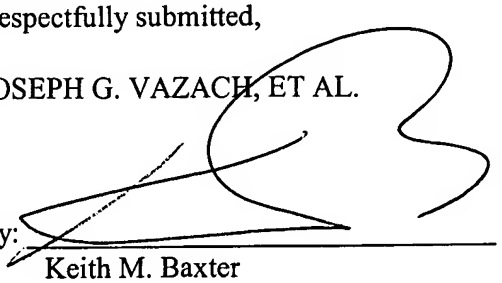
By: 

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